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(58) Field of search

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(54) Video editing system in a camcorder

(57) An editing system for a combined camera and video tape recorder has a picture display 10 and recording portion 20 and comprises a picture input portion 40 in which a secondary picture is input by a user and a picture compositing portion 30 for mixing the secondary picture signal input to the picture input portion 40 with a picture display 10 thereby allowing secondary pictures such as various titles to be added to the recorded program without erasing any portion of the recorded program.

FIG . 1

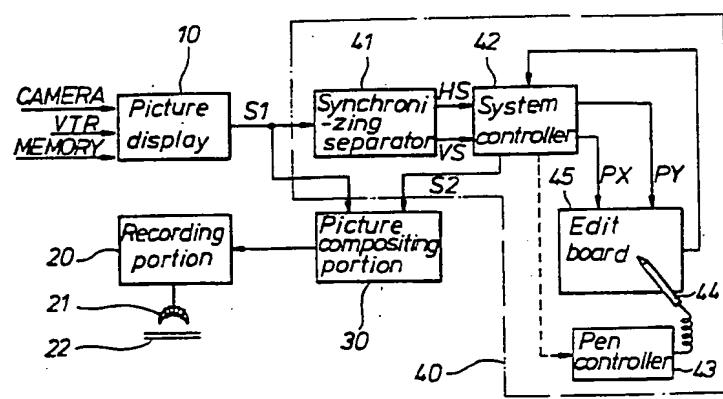
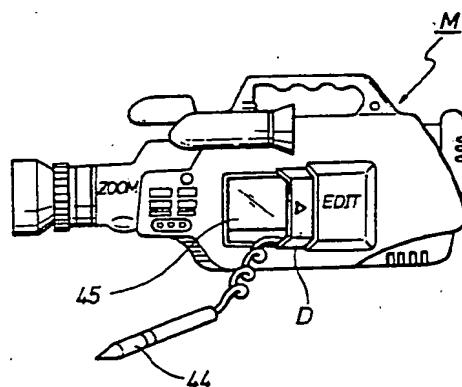


FIG . 3



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FIG . 1

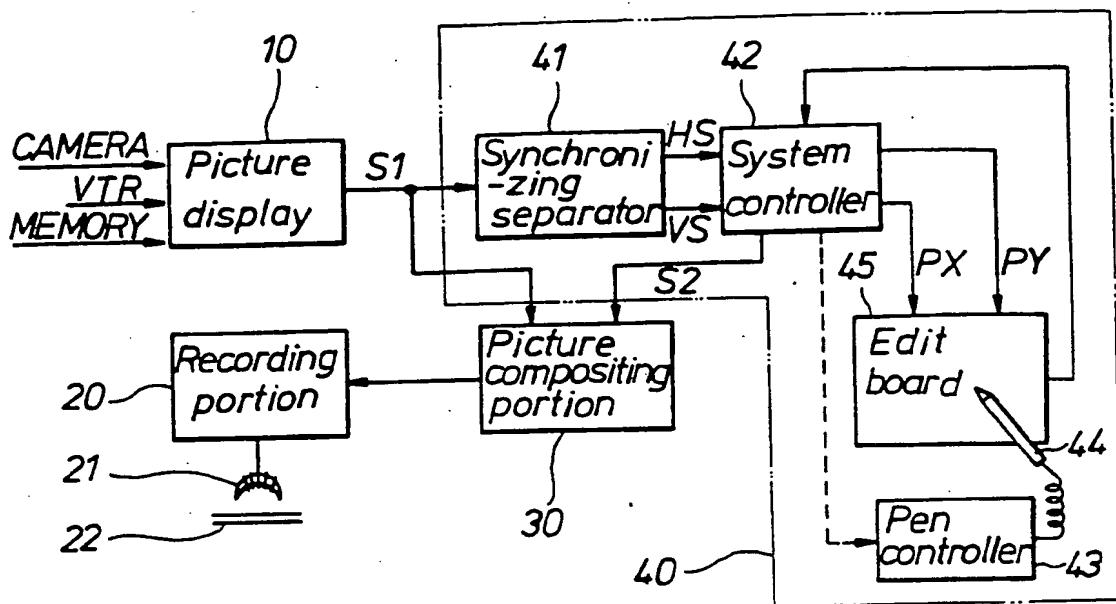
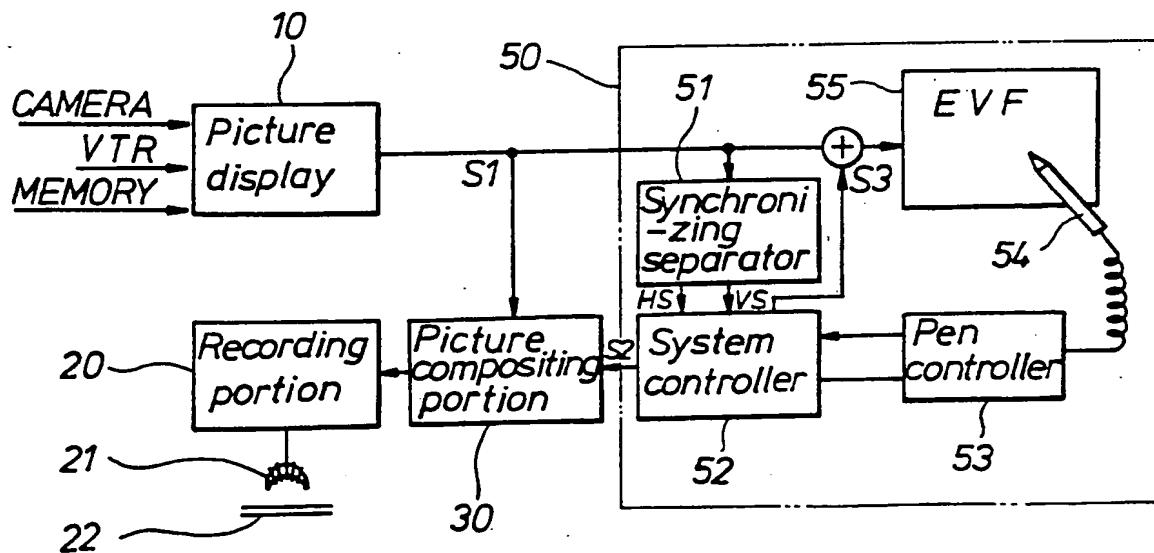


FIG . 2



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FIG. 3

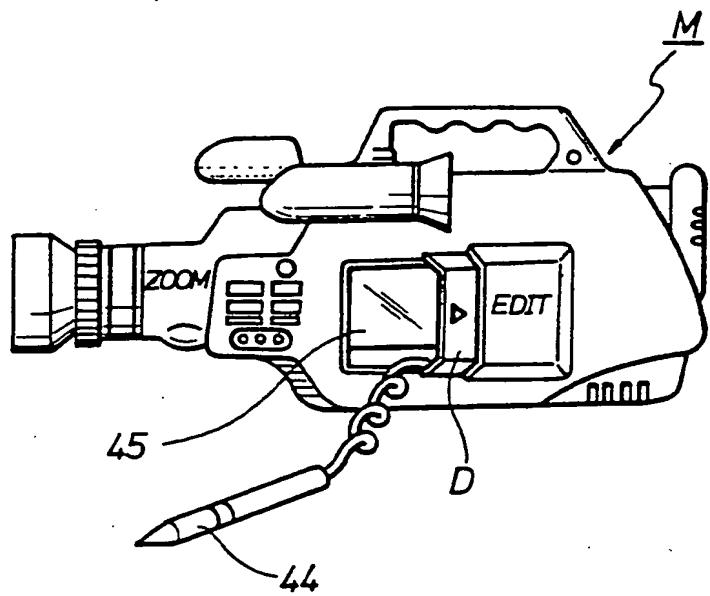
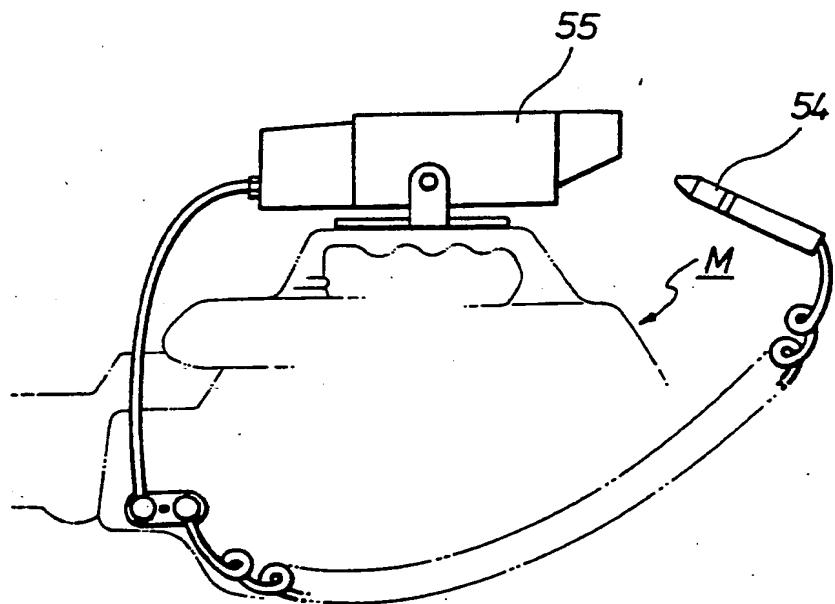


FIG. 4



- 1 -

VIDEO EDITING SYSTEM

This invention relates to an editing system for a video camera and a video recorder, and more particularly to an editing system for a combined 5 video camera and video tape recorder.

During the past few years, combined video cameras and video tape recorders (hereinafter, referred to as camcorders) have become remarkably widespread for domestic use as well as for business use since they are 10 convenient to carry and to operate, and they are able to record and reproduce desirable programs for lengthy periods.

In the recorded program, it is often necessary to add an additional picture such as a title.

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Therefore, a conventional program editing apparatus has performed in such a way that a title or subtitle, etc. is taken by separate photographing, then, is superimposed on the recorded program.

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However, in such a case, it is necessary to have at least two or more VTR sets and a processor for picture-editing.

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In recent years, a camcorder having a simplified editing system has been developed, but it has a disadvantage in that its use is limited since a portion of the recorded program is erased for the title, etc. to be recorded on the erased portion.

In the above prior art, another disadvantage is that it is undesirable to insert the subtitle if the portion of the program to be erased is important.

5 In addition, since the title, etc., which can be added by conventional editing system is a simple still picture, it is impossible to obtain an animation effect.

10 Specific embodiments of the present invention aim to substantially eliminate the above problems and drawbacks of the conventional system, and to provide a video system in which an additional picture can be superimposed on a recorded program without a separate editing process.

15 Another object of specific embodiments of the present invention is to provide an editing system which gives an animation effect by performing real time processing.

20 According to one aspect of the present invention there is provided an editing system for a video system having a picture display portion, the editing system comprising;

a picture input portion arranged to permit a secondary picture to be input by a user; and

25 a picture compositing portion arranged to mix the secondary picture signal with a picture signal input to the picture display portion.

The picture source of said picture display portion may be a video camera.

Alternatively or additionally, the picture source of said picture display portion may be a video tape recorder.

5 The picture source of said picture display portion may be a picture memory.

Preferably said picture input portion is a digitizer having a stylus pen and an edit board.

10 Alternatively or additionally, said picture input portion may be provided with an electronic view finder (EVF) and a light pen.

The editing system may operate within a combined camera and video recorder.

15 According to a second aspect of the present invention there is provided an editing system for combined camera and video tape recorder having a picture display portion and a recording portion, comprising;

20 a picture input portion for inputting a second picture by user; and

a picture compositing portion for mixing the second picture signal inputted to the picture input section with the picture signal inputted to the picture display section.

25 The picture source of said picture display portion may be a video camera, a video tape recorder or picture memory.

In a preferred arrangement the picture input portion is a digitizer having a stylus pen and an edit board disposed in a camcorder body.

Alternatively or additionally, the picture input portion may be provided
5 with an electronic view finder (EFV) and a light pen.

The invention also extends to a video system provided with an editing system as above, in accordance with the first or second aspect of the invention. The video system may be a camcorder.

10 For a better understanding of the invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings, in which:

15 Figure 1 is a schematic block diagram showing an embodiment of editing system for use in a camcorder,

Figure 2 is a schematic block diagram for explaining another embodiment of editing system for use in a camcorder,

20 Figure 3 is a schematic side view of a camcorder which includes the editing system of Figure 1, and

25 Figure 4 is a schematic side view of a camcorder which includes the editing system of Figure 2.

Referring particularly to Figure 1, this shows a schematic block diagram of one embodiment of editing system which is provided with a digitizer type picture input portion.

5 The editing system for a camcorder shown in Figure 1 comprises a picture input portion 40 including a synchronizing signal separator 41 for outputting the vertical and horizontal synchronizing signals by separating the picture signal S1 inputted from the picture display 10, a system controller 42 for controlling the system, an edit board 45, a stylus pen 44 and a pen controller 43; a picture compositing portion 30 for compositing the first picture signal S1 inputted from the picture display 10 with the second picture signal S2 outputted from the picture input portion 40; and, a recording portion 20 for recording the output signal from the picture compositing portion 30 on a magnetic recording tape 22 through a head 21.

15 Preferably, the picture source for the picture signal inputted to the picture displaying portion 10 is a camera of the camcorder, or a separate video tape recorder, or a picture memory.

20 Referring to Figure 3, in accordance with the editing system of the first embodiment as described above, it is preferable that door D is provided at a side surface of the camcorder body M, within which the edit board 45 and stylus pen 44 are installed.

25 The operation of the editing system as described above will be explained below.

The picture signal S1 output from the picture display 10 is input to the picture compositing portion 30 and the synchronizing signal separator 41. Then, system controller 42 outputs the X-scan signal PX and Y-scan signal PY according to the vertical and horizontal signals VS and HS which are 5 output from the synchronizing signal separator 41.

At this time, if a predetermined pattern is input on the edit board 45 by the user with the stylus pen 44 which is controlled by the pen controller 43, it is processed by the system controller 42, and is output to the picture 10 compositing portion 30 as a second picture signal S2. Then, the resultant signal is recorded on the video magnetic tape 22, so that a picture having an additional title is obtained.

In the above editing process, since the potential on the edit board 45 15 is low level, and the potential of the stylus pen 44 is high level, the coordinate value at which the potential difference between the edit board and stylus pen is formed is recognized by the system controller 42, the signal is recorded on the video tape 21 through the picture compositing portion 30.

20 Figure 2 shows another embodiment of editing system, in which the picture input portion 50 is provided with a light pen 54 instead of the stylus pen 44 of the first embodiment.

25 In the embodiment of Figure 2, an electronic view finder (EVF) or separate large-sized electronic view finder can be used as the input picture on which the picture is displayed through the picture display 10.

The user can input the secondary picture on the EVF with the light pen 54 while viewing the EVF. The system controller 52 allows the secondary picture to be addressed by outputting a grid signal to the picture signal S1.

5 Referring to Figure 4, in the editing system according to the embodiment of Figure 3, it is desirable that the input picture is composed of the large-sized EVF 55 which is coupled to the body M, and that the light pen 54 is connected to the body M.

10 In accordance with this embodiment, it is possible to input the secondary picture while viewing the picture, so that the secondary picture can easily be set in the pattern position thereof.

15 Furthermore, in the case that the editing system is provided with a separate memory means or recording speed control means in the recording portion, animated processing of the secondary picture may be performed by a real time processing.

20 As mentioned above, secondary pictures such as various titles can be added to the recorded program without erasing any portion of the recorded program, and can easily be set in the correct position. Various changes and modifications may be made without departing from the scope of the invention.

25 The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually
5 exclusive.

Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly
10 stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of the foregoing
15 embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

CLAIMS

1. An editing system for a video system having a picture display portion, the editing system comprising;

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a picture input portion arranged to permit a secondary picture to be input by a user; and

10 a picture compositing portion arranged to mix the secondary picture signal with a picture signal input to the picture display portion.

2. An editing system as claimed in claim 1, wherein a picture source of said picture display portion is a video camera.

15 3. An editing system as claimed in claim 1, or claim 2, wherein a picture source of said picture display portion is a video tape recorder.

4. An editing system as claimed in any of claims 1 to 3, wherein a picture source of said picture display portion is a picture memory.

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5. An editing system as claimed in any of Claims 1 to 4, wherein said picture input portion is a digitizer having a stylus pen and an edit board.

25 6. An editing system as claimed in any of Claims 1 to 5, wherein said picture input portion is provided with an electronic view finder (EVF) and a light pen.

7. An editing system as claimed in any of the above claims which operates within a combined camera and video recorder.
8. An editing system for combined camera and video tape recorder having
5 a picture display portion and a recording portion, comprising:
 - a picture input portion for inputting a second picture by user; and
 - 10 a picture compositing portion for mixing the second picture signal inputted to the picture input section with the picture signal inputted to the picture display section.
9. An editing system as claimed in claim 8, wherein a picture source of
15 said picture display portion is a video camera, a video tape recorder or picture memory.
10. An editing system as claimed in claim 8 or Claim 9, wherein said picture input portion is a digitizer having a stylus pen and an edit board disposed in a camcorder body.
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11. An editing system as claimed in any of Claims 8 to 10, wherein said picture input portion is provided with an electronic view finder (EFV) and a light pen.
- 25 12. An editing system substantially as herein described with reference to the accompanying drawings.

13. A video system provided with an editing system according to any of the preceding claims.

14. A video system according to claim 13, being a camcorder.